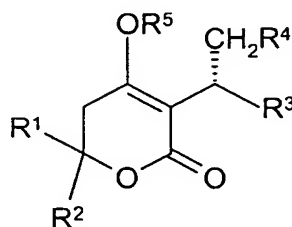


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What is Claimed is

1. A process for preparing a compound of the formula I:



10

formula I

wherein

R¹ and R² independently of one another denote hydrogen or a group which is selected from among the group consisting of C₁-C₆-alkyl, C₃-C₈-cycloalkyl, C₆-C₁₀-aryl and C₁-C₄-alkylene-C₆-C₁₀-aryl, optionally with one, two or three substituents, selected from the group consisting of OH, NH₂, NH-CO-CH₃ or N(-CO-CH₃)₂, halogen, C₁-C₄-alkoxy and CF₃, while R¹ and R² do not simultaneously have the same meaning;

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R³ denotes an aryl substituted in the meta position, which optionally comprises at least one other substituent, the substituents being selected from the group consisting of F, Cl, Br, I, OH, O-SO₂-CF₃, NO₂, NH₂, NH-SO₂-(4-trifluoromethylpyridin-2-yl), N(-CH₂-aryl)₂, NY₁Y₂ with Y₁ and Y₂ selected from H, COO-alkyl, COO-CH₂-aryl, CO-alkyl and CO-aryl;

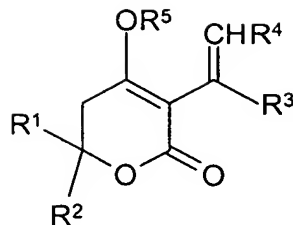
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R⁴ is selected from the group consisting of H and C₁-C₈-alkyl; and

R⁵ is selected from the group consisting of H, Si(CH₃)₃, Li, Na, K, Cs, N(R')₄, while all the R' groups may be identical or different and are selected from C₁-C₈-alkyl and CH₂-aryl;

30

which process comprises hydrogenating a compound of the formula II



formula II

wherein the groups R^1 to R^5 are as previously defined in this claim, in the presence of a catalyst which contains at least one ligand in the form of a chiral 1,2-bis(phospholano)maleic anhydride.

2. The process according to claim 1, wherein R^1 and R^2 independently of one another are selected from the group consisting of methyl, ethyl, propyl, butyl, phenyl, benzyl, cyclohexyl, phenylethyl and phenylpropyl, optionally with a substituent selected from the group consisting of hydroxy, fluorine, chlorine, bromine, methoxy, ethoxy and CF_3 .

3. The process according to one of claim 1, wherein R^1 denotes phenylethyl and R^2 denotes propyl or R^1 denotes propyl and R^2 denotes phenylethyl.

4. The process according to claim 1, wherein R^1 and R^2 are selected from phenylethyl and propyl, R^3 denotes optionally substituted phenyl with an NO_2 group in the meta position, R^4 denotes methyl and R^5 denotes hydrogen.

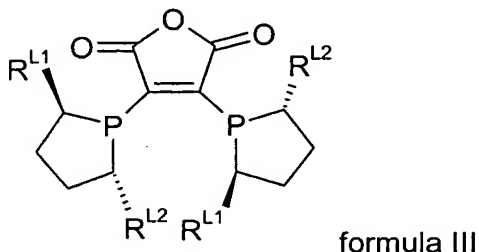
5. The process according to claim 1, wherein the starting compound of the formula I is used in the form of an E/Z mixture.

6. The process according to claim 5, wherein roughly 50:50 mixture of E and Z isomer is used.

- 5 **7.** The process according to claim 1 wherein the catalyst has the following structure:

[ligand¹-transition metal-ligand²] anion,

- 10 wherein the ligand¹ denotes a chiral 1,2-bis(phospholano)maleic anhydride of formula III



- 15 wherein R^{L1} and R^{L2} which may be identical or different represent branched or unbranched C₁-C₈-alkyl.

- 8.** The process according to claim 7, wherein the ligand² denotes an unsaturated cyclic hydrocarbon with 3 to 12 carbon atoms.

- 20 **9.** The process according to claim 7, wherein the ligand² denotes a cyclopentadiene, benzene, cycloheptatriene or cyclooctadiene system.

- 10.** The process according to claim 9, wherein the ligand² denotes cyclopentadiene or 1,5-cyclooctadiene.

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- 11.** The process according to claim 7, wherein the ligand¹ of formula III, R^{L1} and R^{L2} represent branched or unbranched C₁-C₄-alkyl.

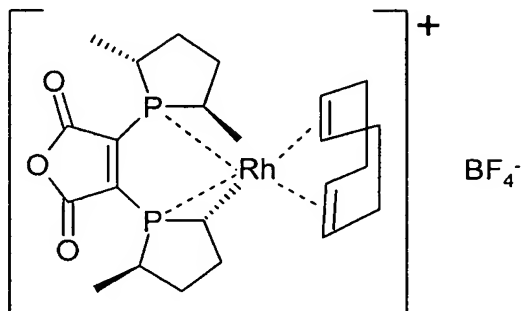
- 30 **12.** The process according to claim 11, wherein R^{L1} and R^{L2} both represent methyl.

- 13.** The process according to claim 1, characterised in that the transition metal in the catalyst is rhodium-(I), ruthenium-(I) or iridium-(I).

- 5 **14.** The process according to claim 1, wherein the anion in the catalyst is BF_4^- , $\text{CF}_3\text{-CO-O}^-$, Cl^- , Br^- or I^- .

- 15.** The process according to claim 1 wherein it is carried out in the presence of the following catalyst:

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- 16.** The process according to claim 1 wherein the hydrogenation is carried out in the presence of a base.

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- 17.** The process according to claim 16, wherein the base is selected from the group consisting of a hydroxide, $\text{C}_1\text{-C}_5$ -alkoxide, bicarbonate, carbonate, di- and tribasic phosphate, borate, fluoride, optionally with $\text{C}_1\text{-C}_4$ -alkyl or aryl-substituted amine, optionally with $\text{C}_1\text{-C}_3$ substituted silane.

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- 18.** The process according to claim 16 wherein the base is selected from alkali metal or alkaline earth metal methoxide, ethoxide or carbonate.

- 25 **19.** The process according to claim 16 wherein the base is used in an amount of about 1mol% to about 20mol%.

- 20.** The process according to claim 1 wherein the ratio (in mol) of substrate/catalyst is about 200/1 to 5000/1.

5 **21.** The process according to claim 1 wherein the temperature during hydrogenation is about 20°C to about 100°C.

22. The process according to claim 1 wherein the hydrogen pressure during hydrogenation is about 2 bar to about 100 bar.

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